



# PUBLIC NOTICE

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**FCC SEEKS ADDITIONAL COMMENT ON RECOMMENDATIONS APPROVED BY THE  
ADVISORY COMMITTEE FOR THE 2007 WORLD RADIOCOMMUNICATION  
CONFERENCE REGARDING THE REGULATORY MEASURES FOR THE PROTECTION  
OF THE EARTH EXPLORATION-SATELLITE SERVICE (PASSIVE) FROM UNWANTED  
EMISSIONS OF ACTIVE SERVICES  
(2007 WORLD RADIOCOMMUNICATION CONFERENCE, AGENDA ITEM 1.20)**

**IB Docket No. 04-286**

The 2007 World Radiocommunication Conference (WRC-07) will address Agenda Item 1.20, which calls for consideration of regulatory measures for the protection of the Earth exploration-satellite service (passive<sup>1</sup>) from unwanted emissions of active services in the following bands: 1 350-1 400 MHz, 1 427-1 452 MHz, 22.55-23.55 GHz, 30-31.3 GHz, 47.2-50.2 GHz and 50.4-52.6 GHz. These bands are allocated for use in various FCC rule parts related to a number of radio services including Part 25 (Satellite Communications), Part 27 (Miscellaneous Wireless Communications Services, Part 87 (Aviation) Part 90 (Private Land Mobile Radio Services), Part 95 (Personal Radio Services), and Part 101 (Fixed Microwave Services).

On April 27, 2006, the World Radiocommunication Conference Advisory Committee (WRC-07 Advisory Committee) approved and submitted for Commission consideration its recommendations with regard to a draft U.S. proposal for WRC-07 Agenda Item 1.20 from the Executive Branch agencies.<sup>2</sup> At that time, the WRC-07 Advisory Committee indicated that it was premature for the United States to assert that values proposed by the Executive Branch Agencies are based on an assessment of the impact on the relevant active services. The WRC-07 Advisory Committee recommendations and the proposal from the Executive Branch agencies are

<sup>1</sup> ITU Radio Regulations define a “passive sensor” as a measuring instrument in the earth exploration-satellite service or in the space research service by means of which information is obtained through reception of radio waves of natural origin. *See International Telecommunication Union Radio Regulations*, Volume 1, Articles 1.182 and 1.183. *Passive service* refers herein to any radiocommunication service, such as the EESS (passive), that does not involve transmitters. In contrast, an *active service* involves both transmitters and receivers.

<sup>2</sup> The WRC-07 Advisory Committee was established by the FCC in January 2004 to assist the FCC in developing proposals for WRC-07. Since its inception, the WRC-07 Advisory Committee has developed and submitted recommendations and preliminary views for Commission consideration. *See, e.g., The FCC’s Advisory Committee for the 2007 World Radiocommunication Conference Proposes Preliminary Views on WRC-07 Issues*, Public Notice, DA 04-1698 (rel. June 14, 2004) (Int’l Bur. 2004).

attached to this Public Notice.<sup>3</sup> Subsequently, the Executive Branch Agencies revised their proposal on Agenda Item 1.20 to account for some of the WRC-07 Advisory Committee recommendations. The revised proposal is provided in Annex III of this Notice.

In light of the requirement to formulate US proposals for the approaching WRC-07<sup>4</sup> and the progress of the technical studies on the subject issue, the FCC seeks additional comment on the proposal from the Executive Branch agencies.<sup>5</sup> In particular, noting that the proposal from the Executive Branch agencies includes specific, mandatory limits on unwanted emissions for the individual transmitters in several of the frequency bands listed in the table below, the FCC seeks to establish:

- (a) What would be the impact of the proposed limits (in terms of performance, cost, weight, size, etc.) on systems in the specified frequency bands? To the extent available, please provide technical analyses in support of the comments.
- (b) Can the systems operate without significant modifications to current system design within the limits proposed in the Executive Branch agencies' proposal, or will the proposed limits require significant modifications to system design? Are the differences between the emission limits in the Executive Branch proposal and the limits in the FCC rules significant enough to have an impact on the provision of current and future service applications in the affected bands? If so, please explain.

The table below lists the bands that may be affected by the Executive Branch proposal; the services in those bands; and the relevant FCC rules applicable to those bands.

Active service band	Affected Non-Federal Allocation	FCC rule parts
1 350-1 400 MHz	1390-1395  FIXED  MOBILE except aeronautical mobile	PART 27—MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES
	1395-1400  LAND MOBILE (medical telemetry and medical telecommand)	PART 95—PERSONAL RADIO SERVICES

<sup>3</sup> These documents are also available through the FCC's WRC-07 website at: <http://www.fcc.gov/wrc-07>.

<sup>4</sup> WRC-07 is scheduled for 22 October to 16 November 2007.

<sup>5</sup> *FCC Seeks Comment on recommendations Approved by the Advisory Committee for the 2007 World Radiocommunication Conference*, Public Notice, DA 06-960 (rel. May 1, 2006) (Int'l Bur. 2006).

1 427-1 429 MHz	1427-1429.5 LAND MOBILE Fixed (telemetry)	PART 90—PRIVATE LAND MOBILE RADIO SERVICES  PART 95—PERSONAL RADIO SERVICES
1 429-1 452 MHz	1429.5-1432 FIXED (telemetry) LAND MOBILE (telemetry)	PART 90—PRIVATE LAND MOBILE RADIO SERVICES PART 95—PERSONAL RADIO SERVICES
	1432-1435 FIXED MOBILE except aeronautical mobile	PART 27—MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES
	1435-1452 MOBILE (aeronautical telemetry)	PART 87—AVIATION
22.55-23.55 GHz	22.55-23.55 INTER-SATELLITE US278	PART 25—SATELLITE COMMUNICATIONS
31-31.3 GHz	31-31.3 FIXED	PART 101—FIXED MICROWAVE SERVICES
50.4-51.4 GHz <sup>2</sup>	50.4-51.4 FIXED-SATELLITE (Earth-to-space)	PART 25—SATELLITE COMMUNICATIONS
47.2-50.2 GHz (Regions 2 and 3) 49.44-50.2 GHz <sup>2</sup> (Region 1)	47.2-48.2 FIXED-SATELLITE (Earth-to-space)  48.2-50.2 FIXED-SATELLITE (Earth-to-space)	PART 25—SATELLITE COMMUNICATIONS
51.4-52.6 GHz	51.4-52.6 FIXED	PART 101—FIXED MICROWAVE SERVICES

In general, the emission limits proposed by the Executive Branch Agencies are more restrictive than the emission limits in the existing FCC rules. We note that in some cases it is difficult to compare the limits because they are specified for different bandwidths.

The comments provided by interested parties will assist the FCC in its upcoming consultations with the U.S. Department of State and NTIA in the development of U.S. positions for WRC-07. As the recommendations that are attached to this Public Notice may evolve in the course of interagency discussions as WRC-07 nears, they do not constitute a final U.S. Government position on any issue.

The text of these recommendations is also available in the FCC's Reference Information Center, Room CY-A257, 445 12<sup>th</sup> Street, SW, Washington, DC 20554 or by accessing the FCC's WRC-07 world wide web site at: <http://www.fcc.gov/wrc-07>. Comments on the recommendations may be filed by referencing IB Docket 04-286 using the Commission's Electronic Comment Filing System (ECFS) or by filing paper copies. Parties are encouraged to file electronically by following the instructions at: <http://www.fcc.gov/cgb/ecfs>. Parties who choose to file paper copies only should submit an original and four copies of each filing. Guidelines and address for paper filings are available at: <http://www.fcc.gov/osec>. In addition, please submit one copy of your comments electronically or by paper to Alexander Roytblat, FCC WRC-07 Director, Federal Communications Commission, Room 6-A865, 445 12<sup>th</sup> Street, SW, Washington, DC 20554; e-mail: [WRC07@fcc.gov](mailto:WRC07@fcc.gov). Comments should refer to IB Docket No. 04-286 and to WRC Agenda Item 1.20. The deadline for comments on the recommendations is December 6, 2006.

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## ANNEX I

### I. Draft Preliminary Proposal for the WRC-07, Agenda Item 1.20 developed by the Executive Branch Agencies on March 17, 2006 and provided by the National Telecommunications and Information Administration (NTIA)

Document WAC/095(27.04.06):

#### DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

**WRC-07 Agenda Item 1.20<sup>6</sup>:** to consider the results of studies, and proposals for regulatory measures, if appropriate, regarding the protection of the Earth exploration-satellite service (passive) from unwanted emissions of active services in accordance with Resolution **738 (WRC-03)**;

**Background Information:** The *resolves* in Resolution **738** calls for three actions: 1) study the compatibility between EESS (passive) and the corresponding active services listed in the Table in Resolution **738** to update Recommendation ITU-R SM.1633 or develop additional Recommendations; 2) further study the impact of implementing the values in *considering f*) and *g*) in the bands 31–31.3 GHz and 51.4–52.6 GHz for unwanted emissions of systems operating in Region 2 and 3, taking into account that the impact on fixed-service systems in Region 1 is documented in ITU-R Recommendation SM.1633; and 3) review the results of studies in 1) and 2) in order to consider regulatory measures, if appropriate, to ensure the protection of the EESS (passive) operating in the bands listed in the table in Resolution **738 (WRC 03)** from unwanted emissions of active services operating in the corresponding bands while taking into account the impact on all concerned services of implementing or not implementing such measures. The table below shows the frequency band and radiocommunication service combinations within the scope of the agenda item.

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<sup>6</sup> This is a counter proposal to the one contained in FCC Public Notice DA 05–1011 as WAC/052(04.04.05).

EESS (passive) band	Active service band	Active service
1 400-1 427 MHz	1 350-1 400 MHz	Fixed service (FS) Mobile service (MS) Radiolocation service (RLS)
	1 427-1 429 MHz	FS, MS (except aeronautical mobile service (AMS)) and space operation service (Earth-to-space) <sup>1</sup>
	1 429-1 452 MHz	FS and MS
23.6-24 GHz	22.55-23.55 GHz	Inter-satellite service (ISS)
31.3-31.5 GHz	30-31 GHz	FSS (Earth-to-space)
	31-31.3 GHz	FS (except HAPS)
50.2-50.4 GHz <sup>2</sup>	50.4-51.4 GHz <sup>2</sup>	FSS (Earth-to-space) <sup>2</sup>
	47.2-50.2 GHz (Regions 2 and 3) 49.44-50.2 GHz <sup>2</sup> (Region 1)	FSS <sup>2</sup>
52.6-54.25 GHz	51.4-52.6 GHz	FS

<sup>1</sup> Resolution 738 (WRC 03) incorrectly refers to the space research service instead of the space operation service.

<sup>2</sup> Studies in this band must take into account No. **5.340.1**.

Studies documented in Recommendation ITU–R SM.1633 show that active services in some of these bands do not produce significant unwanted emissions in the adjacent passive band. However, active services in other bands produce unwanted emissions in excess of EESS (passive) protection requirements. Because of the differences between the active services, and the differences in the use of the active and passive services from band to band, the solutions for this agenda item have been determined on a band-by-band and service-by-service basis. The proposed solutions were determined considering the impact to both the active and passive services.

Resolution **738** can be suppressed, and there is no need for an agenda item dealing with unwanted emission levels in EESS (passive) bands for the next Conference.

**Proposal:**

**USA/ /1 MOD**

**1 300-1 525 MHz**

<b>Allocation to services</b>		
<b>Region 1</b>	<b>Region 2</b>	<b>Region 3</b>
.....		
<b>1 350-1 400</b> FIXED <u>ADD 5.AAA</u> MOBILE RADIOLOCATION 5.149 5.338 5.339 5.339A	<b>1 350-1 400</b> RADIOLOCATION 5.149 5.334 5.339 5.339A	
<b>1 400-1 427</b>	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	
<b>1 427-1 429</b>	SPACE OPERATION (Earth-to-space) <u>ADD 5.BBB</u> FIXED <u>ADD 5.AAA</u> MOBILE except aeronautical mobile 5.341	
<b>1 429-1 452</b> FIXED <u>ADD 5.AAA</u> MOBILE except aeronautical mobile 5.339A 5.341 5.342	<b>1 429-1 452</b> FIXED <u>ADD 5.AAA</u> MOBILE 5.343 5.339A 5.341	
.....		

## USA/ /2 **ADD**

**5.AAA** In order to ensure the protection of the Earth exploration-satellite (passive) service in the band 1 400–1 427 MHz, the unwanted emissions power delivered to the antenna of any station in the fixed service operating in the band 1 350–1 400 MHz or in the band 1 427–1 452 MHz shall be limited to –45 dBW in the 27 MHz reference bandwidth of the band 1 400–1 427 MHz. Fixed service systems in operation at the date of entry into force of the Final Acts of WRC-07 are not subject to this limit.

**Reasons:** Results of studies documented in Recommendation ITU–R SM.1633 show that large numbers of higher power fixed service transmitters can cause significant levels of unwanted emissions in the 1 400–1 427 MHz passive band. Considering equitable burden-sharing between the active and passive services, the single-entry unwanted emission limit proposed for future systems will slightly exceed the desired protection level of the EESS (passive) sensors in some cases, but will still allow the collection of valuable scientific data and will not place an undue burden on the future development and use of the fixed service in these nearby bands.

## USA/ /3 **NOC**

No change to Radio Regulations regarding the radiolocation service allocation in the band 1 350–1 400 MHz.

**Reasons:** Although studies documented in Recommendation ITU–R SM.1633 show that the radiolocation unwanted emissions in the EESS (passive) band at 1 400–1 427 MHz would exceed the permissible interference threshold in Recommendation ITU–R SA.1029–2, any interference would occur for only short time periods and would be readily discernible by users of the remote sensing data, allowing corrupted data to be discarded. The remaining uncorrupted data is expected to satisfy the scientific objectives of the EESS missions. Studies also show that radars would experience unacceptable degradation in operational coverage and range, target resolution, and accuracy if required to meet unwanted emission limits in the 1 400–1 427 MHz band. As with other pairs of active and passive bands, use of portions of the allocated bands must not be restricted. Radars would suffer an increased likelihood of interference from other radars and a reduction in coverage range, while a reduced bandwidth would be inadequate for remote sensing requirements.

## USA/ /4 **ADD**

**5.BBB** In order to ensure the protection of the Earth exploration-satellite (passive) service in the band 1 400–1 427 MHz, the unwanted emissions e.i.r.p. of any earth station in the space operation service (Earth-to-space) operating in the band 1 427–1 429 MHz shall be limited to 8 dBW in the 27 MHz reference bandwidth of the band 1 400–1 427 MHz. Space operation service earth stations in operation at the date of entry into force of the Final Acts of WRC-07 are not subject to this limit.

**Reasons:** Results of studies documented in Recommendation ITU–R SM.1633 show that earth station transmitters in the 1 427–1 429 MHz band can cause significant levels of unwanted emissions in the 1 400–1 427 MHz passive band. Considering equitable burden-sharing between the active and passive services, the single-entry unwanted emission limit proposed for future systems will slightly exceed the desired protection level of the EESS (passive) sensors in some cases, but will still allow the collection of valuable scientific data and will not place an undue burden on the future development and use of the space operation service (Earth-to-space) in the 1 427–1 429 MHz band.

**22-24.75 GHz**

<b>Allocation to services</b>		
<b>Region 1</b>	<b>Region 2</b>	<b>Region 3</b>
....		
<b>22.55-23.55</b>	FIXED INTER-SATELLITE MOBILE 5.149	
<b>23.55-23.6</b>	FIXED MOBILE	
<b>23.6-24</b>	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	
....		

**USA/ /5 NOC**

No change to Radio Regulations regarding the inter-satellite service allocation in the band 22.55–23.55 GHz.

**Reasons:** Results of studies documented in Recommendation ITU–R SM.1633 show that unwanted emissions from the ISS in the 22.55–23.55 GHz band are well below the recommended protection criteria for the EESS (passive) in the 23.6–24.0 GHz band. Therefore, no changes are needed to the Radio Regulations to protect the EESS (passive) in the 23.6–24.0 GHz band from unwanted emissions from the ISS in the 22.55–23.55 GHz band.

**USA/ /6 MOD**

**29.9-34.2 GHz**

<b>Allocation to services</b>		
<b>Region 1</b>	<b>Region 2</b>	<b>Region 3</b>
....		
<b>30-31</b>	FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth) 5.542	

<b>31-31.3</b>	FIXED 5.543A <u>ADD 5.CCC</u> MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research 5.544 5.545 5.149
<b>31.3-31.5</b>	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340
....	

**USA/ 17 NOC**

No change to Radio Regulations regarding the fixed-satellite service (Earth-to-space) allocation in the band 30-31 GHz.

**Reasons:** Results of studies documented in Recommendation ITU-R SM.1633 show that unwanted emissions from the FSS in the 30-31 GHz band do not exceed the recommended protection criteria for the EESS (passive) in the 31.3-31.5 GHz band. The FSS allocation is separated from the EESS (passive) allocation by 300 MHz, which greatly reduces the possibility of FSS unwanted emissions exceeding the protection criteria in the EESS (passive) band. Unwanted emission limits in the EESS (passive) band are unnecessary, and could constrain the future development of FSS uplink transmitters in the 30-31 GHz band.

**USA/ /8 ADD**

**5.CCC** In order to ensure the protection of the Earth exploration-satellite (passive) service in the band 31.3–31.5 GHz, the unwanted emissions power delivered to the antenna of any station in the fixed service operating in the band 31.0–31.3 GHz shall be limited to –38 dBW in any 100 MHz reference bandwidth in the band 31.3–31.5 GHz (see also No. **5.543A**). Fixed service systems in operation at the date of entry into force of the Final Acts of WRC–07 are not subject to this limit.

**Reasons:** Studies documented in Recommendation ITU–R SM.1633 indicate that EESS (passive) systems in the 31.3–31.5 GHz band are protected if unwanted emissions in that band from fixed service transmitters in the 31.0–31.3 GHz band do not exceed –38 dBW in any 100 MHz reference bandwidth. Measures to ensure that future FS systems in the 31.0–31.3 GHz band do not exceed this level will not constitute an undue burden on the fixed service.

**USA/ /9 MOD**

**40-47.5 GHz**

<b>Allocation to services</b>		
<b>Region 1</b>	<b>Region 2</b>	<b>Region 3</b>
....		
<b>47.2-47.5</b>	FIXED FIXED-SATELLITE (Earth-to-space) 5.552 <u>ADD 5.DDD</u> MOBILE 5.552A	

**47.5-51.4 GHz**

<b>Allocation to services</b>		
<b>Region 1</b>	<b>Region 2</b>	<b>Region 3</b>
<b>47.5-47.9</b> FIXED FIXED-SATELLITE (Earth-to-space) 5.552 <u>ADD</u> <u>5.DDD</u> (space-to-Earth) 5.516B 5.554A MOBILE	<b>47.5-47.9</b> FIXED FIXED-SATELLITE (Earth-to-space) 5.552 <u>ADD</u> <u>5.DDD</u> MOBILE	
<b>47.9-48.2</b>	FIXED FIXED-SATELLITE (Earth-to-space) 5.552 <u>ADD</u> <u>5.DDD</u> MOBILE 5.552A	
<b>48.2-48.54</b> FIXED FIXED-SATELLITE (Earth-to-space) 5.552 <u>ADD</u> <u>5.DDD</u> (space-to-Earth) 5.516B 5.554A 5.555B MOBILE	<b>48.2-50.2</b> FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.552 <u>ADD</u> <u>5.DDD</u> MOBILE	
<b>48.54-49.44</b> FIXED FIXED-SATELLITE (Earth-to-space) 5.552 <u>ADD</u> <u>5.DDD</u> MOBILE 5.149 5.340 5.555		
<b>49.44-50.2</b> FIXED FIXED-SATELLITE (Earth-to-space) 5.552 <u>ADD</u> <u>5.DDD</u> (space-to-Earth) 5.516B 5.554A 5.555B MOBILE		
<b>50.2-50.4</b>	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340	
<b>50.4-51.4</b>	FIXED FIXED-SATELLITE (Earth-to-space) <u>ADD</u> <u>5.DDD</u> MOBILE Mobile-satellite (Earth-to-space)	

**USA/ /10 ADD**

**5.DDD** In order to ensure the protection of the Earth exploration-satellite (passive) service in the band 50.2-50.4 GHz, the unwanted emissions e.i.r.p. of any earth station in the fixed-satellite service operating in the band 47.2-50.2 GHz in Regions 2 and 3, 49.44-50.2 GHz in Region 1, and 50.4-51.4 GHz in all Regions shall be limited to 30 dBW in the 200 MHz reference bandwidth of the band 50.2-50.4 GHz. Fixed-satellite service systems in operation at the date of entry into force of the Final Acts of WRC-07 are not subject to this limit.

**Reasons:** Results of studies documented in Recommendation ITU-R SM.1633 show that fixed-satellite service uplink transmitters operating in bands adjacent to then 50.2-50.4 GHz passive band can cause significant levels of unwanted emissions in the 50.2-50.4 GHz passive band.

**USA/ /11 MOD**

**51.4-55.78 GHz**

Allocation to services		
Region 1	Region 2	Region 3
<b>51.4-52.6</b>	FIXED <u>ADD 5.EEE</u> MOBILE 5.547 5.556	
<b>52.6-54.25</b>	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556	
....		

**USA/ /12 ADD**

**5.EEE** In order to ensure the protection of the Earth exploration-satellite (passive) service in the band 52.6–54.25 GHz, the unwanted emissions power delivered to the antenna of any station in the fixed service operating in the band 51.4–52.6 GHz shall be limited to –33 dBW in any 100 MHz reference bandwidth in the band 52.6–54.25 GHz. Fixed-service systems in operation at the date of entry into force of the Final Acts of WRC-07 are not subject to this limit.

**Reasons:** Studies documented in Recommendation ITU-R SM.1633 indicate that EESS (passive) systems in the 52.6–54.25 GHz band are protected if unwanted emissions in that band from fixed service transmitters in the 51.4–52.6 GHz band do not exceed –33 dBW in any 100 MHz reference bandwidth. Measures to ensure that future FS systems in the 51.4–52.6 GHz band do not exceed this level will not constitute an undue burden on the fixed service.

RESOLUTION 738 (WRC-03)

**Compatibility analyses between the Earth exploration-satellite  
service (passive) and active services**

**Reasons:** Consequential to completion of this agenda item. All of the actions required under this Resolution will have been completed at WRC-07 and it may be suppressed. The technical studies will either have confirmed that the unwanted emissions do not interfere with the EESS (passive) or appropriate regulatory measures, if necessary, will have been determined and decided by WRC-07.

- FCC -

## ANNEX II

### **II. Recommendations approved April 27, 2006 by WRC-07 Advisory Committee on the draft preliminary proposal for the WRC-07, Agenda Item 1.20 developed by the Executive Branch Agencies**

#### **Document WAC/105(27.04.06):**

##### **Comments of IWG-1 on Draft U.S. Proposal from Exec. Branch Agencies on WRC-07 Agenda Item 1.20**

IWG-1 has considered the terrestrial elements of the draft U.S. proposal for WRC-07 Agenda Item 1.20 from the Executive Branch agencies. It offers the following comments:

1. IWG-1 observes that it is premature for the United States to assert, in the background or in the reasons for any specific proposal, that values proposed for the protection of the EESS (passive) are based on an assessment of the impact on the relevant active service. To the extent that any ITU-R studies have even considered the impact on the active service involved – a requirement of both Resolution 738 (WRC-03) and the agenda item – no conclusions have yet been reached, which calls into question the proposals for specific levels at this time. The terrestrial industry is continuing to address this question with respect to the operation of stations in the 1350-1400 MHz, 1427-1452 MHz, 31-31.3 GHz and 51.4-52.6 GHz bands.
2. IWG-1 is concerned with the proposal for mandatory limits on fixed service station emissions into adjacent bands. For protection against unacceptable interference caused by unwanted emissions, mandatory limits may be without precedent in the RRs. The language in the Exec. Branch agencies' proposals for new footnotes (including 5.AAA, 5.CCC, and 5.EEE) would appear to invite BR examination under Art. 11 of compliance with unwanted emission limits. Even if BR examination is not what the Exec. Branch agencies contemplate, the mandatory nature of the wording does not clearly exclude examination, and has serious negative implications for the operation and evolution of advanced services in the affected active service bands. In Document WAC/096, a redline of the Exec. Branch agencies' proposal for Agenda Item 1.20, IWG-1 offers suggestions for the wording of the proposed footnotes that aligns the notes generally with the approach taken by WRC-03 with respect to protection of the radioastronomy service from detrimental interference (see Resolution 739 (WRC-03)), and removes any suggestion that the footnotes would require BR examination.
3. IWG-1 concurs with proposals USA/ /3, 5, 7 and 13.

## **Document WAC/100(27.04.06):**

### **Comments of IWG-2 on Draft U.S. Proposal from Exec. Branch Agencies on WRC-07 Agenda Item 1.20 (Document IWG-2/057)**

IWG-2 has considered the satellite elements of Document IWG-2/057, which contains draft U.S. proposal for WRC-07 Agenda Item 1.20 from the Executive Branch agencies. It offers the following comments:

1. IWG-2 endorses the NOC proposals for the bands 22.55-23.55 GHz and 30-31 GHz (inter-satellite service and fixed-satellite service (Earth-to-space), respectively) that are contained in Proposals USA/ /5 and USA/ /7.
2. IWG-2 also endorses the SUP proposal for Resolution738 that is contained in Proposal USA/ /13.
3. IWG-2 observes that it is premature for the United States to assert, in the background or in the reasons for any specific proposal, that values proposed for the protection of the EESS (passive) are based on an assessment of the impact on the relevant active service. To the extent that any ITU-R studies have even considered the impact on the active service involved – a requirement of both Resolution 738 (WRC-03) and the agenda item – no conclusions have yet been reached. The FSS industry is continuing to address this question with respect to the operation of earth stations in the 47.2-50.2 GHz FSS (Earth-to-space) band.
4. IWG-2 is concerned with the proposal for mandatory limits on FSS earth station emissions into adjacent bands. For protection against unacceptable interference caused by unwanted emissions, mandatory limits may be without precedent in the RRs. The language in the Exec. Branch agencies' proposals for new footnotes (including 5.BBB, 5.DDD, and 5.EEE) would appear to invite BR examination under Art. 11 of compliance with unwanted emission limits. Even if BR examination is not what the Exec. Branch agencies contemplate, the mandatory nature of the wording does not clearly exclude examination, and has serious negative implications for the operation and evolution of advanced services in the affected active service bands. In Document WAC/096, a redline of the Exec. Branch agencies' proposal for Agenda Item 1.20 (Doc. IWG-2/057), IWG-2 offers suggestions for the wording of the proposed footnotes that aligns the notes generally with the approach taken by WRC-03 with respect to protection of the radioastronomy service from detrimental interference (see Resolution 739 (WRC-03), and removes any suggestion that the footnotes would subject FSS and space operations earth stations to BR examination. The language of the alternative text was coordinated with IWG-1, which has responsibility for the terrestrial service elements.
5. With respect to the proposal for an unwanted emission value for FSS earth stations operating in the 47.2-50.2 GHz band (proposed note 5.DDD in Proposal USA/ /10), it appears that the derivation of the 30 dBW/200 MHz level that is stated as needed to protect the EESS (passive) from unwanted emissions into the 50.2-50.4 GHz band may have been based on unrealistic assumptions regarding FSS deployment and parameters. Furthermore, it should be emphasized in the proposal that the protection level is a clear-sky level, and that FSS earth stations in the 47.2-50.2 GHz band can increase their transmit power density by TBD dB, to overcome fading conditions without causing additional impact to the EESS (passive) systems. IWG-2 emphasizes that it has no difficulty with the concept of identifying an unwanted emission level that would protect the EESS (passive) service in that band; at this time, however, that level remains under discussion between interested representatives from both the active service and passive service communities.
6. There is an inconsistency between the language of No. 5.DDD in Proposal USA/ /10 and the proposed modification to Article 5 in Proposal USA/ /9. The former indicates that the note is to apply only to the 49.44-50.2 GHz portion of the 47.2-50.2 GHz band in Region 1, while the latter applies No. 5.DDD to the entire 47.2-50.2 GHz band. IWG-2 recommends that this discrepancy be resolved, but as long as No. 5.DDD reflects a satisfactory resolution of the matter addressed in Comment No. 4 above, IWG-2 takes no position on how this discrepancy should be resolved.



## ANNEX III

### III. Revised Draft Preliminary Proposal for the WRC-07, Agenda Item 1.20 developed by the Executive Branch Agencies on October 20, 2006 and provided by the National Telecommunications and Information Administration (NTIA)

#### United States of America

#### A. DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE<sup>7</sup>

**WRC-07 Agenda Item 1.20:** to consider the results of studies, and proposals for regulatory measures, if appropriate, regarding the protection of the Earth exploration-satellite service (passive) from unwanted emissions of active services in accordance with Resolution **738 (WRC-03)**;

**Background Information:** The *resolves* in Resolution **738** calls for three actions: 1) study the compatibility between EESS (passive) and the corresponding active services listed in the Table in Resolution **738** to update Recommendation ITU-R SM.1633 or develop additional Recommendations; 2) further study the impact of implementing the values in *considering f*) and *g*)<sup>8</sup> in the bands 31–31.3 GHz and 51.4–52.6 GHz for unwanted emissions of systems operating in Region 2 and 3, taking into account that the impact on fixed-service systems in Region 1 is documented in ITU-R Recommendation SM.1633; and 3) review the results of studies in 1) and 2) in order to consider regulatory measures, if appropriate, to ensure the protection of the EESS (passive) operating in the bands listed in the table in Resolution **738 (WRC 03)** from unwanted emissions of active services operating in the corresponding bands while taking into account the impact on all concerned services of implementing or not implementing such measures. The table below shows the frequency band and radiocommunication service combinations within the scope of the agenda item.

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<sup>7</sup> This is a second version of the Executive Branch proposal (October 2006)

<sup>8</sup> Protection values are contained in Resolution 738 considering f and g as follows : *f*) that according to Recommendation ITU-R SM.1633, the EESS (passive) in the band 31.3-31.5 GHz can be protected if the unwanted emissions of fixed-service systems (except high-altitude platform stations (HAPS)) operating in the band 31.0-31.3 GHz do not exceed –38 dBW in a 100 MHz reference bandwidth in the band 31.3-31.5 GHz;

*g*) that according to Recommendation ITU-R SM.1633, the EESS (passive) in the band 52.6-54.25 GHz can be protected if the unwanted emissions of fixed-service systems operating in the band 51.4-52.6 GHz do not exceed –33 dBW in a 100 MHz reference bandwidth in the band 52.6-54.25 GHz;

EESS (passive) band	Active service band	Active service
1 400-1 427 MHz	1 350-1 400 MHz	Fixed service (FS) Mobile service (MS) Radiolocation service (RLS)
	1 427-1 429 MHz	FS, MS (except aeronautical mobile service (AMS)) and space operation service (Earth-to-space) <sup>1</sup>
	1 429-1 452 MHz	FS and MS
23.6-24 GHz	22.55-23.55 GHz	Inter-satellite service (ISS)
31.3-31.5 GHz	30-31 GHz	FSS (Earth-to-space)
	31-31.3 GHz	FS (except HAPS)
50.2-50.4 GHz <sup>2</sup>	50.4-51.4 GHz <sup>2</sup>	FSS (Earth-to-space) <sup>2</sup>
	47.2-50.2 GHz (Regions 2 and 3) 49.44-50.2 GHz <sup>2</sup> (Region 1)	FSS <sup>2</sup>
52.6-54.25 GHz	51.4-52.6 GHz	FS

<sup>1</sup> Resolution 738 (WRC 03) incorrectly refers to the space research service instead of the space operation service.

<sup>2</sup> Studies in this band must take into account No. **5.340.1**.

Studies documented in Recommendation ITU–R SM.1633 show that active services in some of these bands do not produce significant unwanted emissions in the adjacent passive band. However, active services in other bands produce unwanted emissions in excess of EESS (passive) protection requirements. Because of the differences between the active services, and the differences in the use of the active and passive services from band to band, the solutions for this agenda item have been determined on a band-by-band and service-by-service basis.

Regulatory certainty is achieved for the most problematic cases (6 of the 13 cases where bands and services were identified for consideration in Resolution **738**) by administrations limiting unwanted emissions for cases where interference is likely to occur without some action being taken. This is accomplished by RR provisions that apply to administrations operating systems in these six band/services. Administrations would then need to apply those limits in their operations in order to be in compliance with their ITU treaty obligations. A non-mandatory limit published by the ITU would provide useful guidance to administrations but would not provide any level of certainty.<sup>9</sup> While the imposition of the limits will not guarantee that the performance of the passive satellite networks will be unimpaired as new active service transmitters in nearby bands are implemented, the Administration-imposed limits will provide some certainty that the worst interfering cases will be avoided. Second, at this stage of implementation of active services in many of the nearby bands, the emission limits are part of the design considerations from the start rather than retrofitting or modifying existing equipment designs.

The proposals do not require, and no provision is made for, ITU Radiocommunication Bureau examination, or enforcement of these limits.

Resolution **738** can be suppressed, and there is no need for an agenda item dealing with unwanted emission levels in EESS (passive) bands for the next Conference.

<sup>9</sup> Administrations generally adhere to their treaty obligations whether there is ITU enforcement or not. Regulators have understandably stated that provisions in the RR allowing a finding by the ITU of harmful interference to passive satellite service from unwanted emissions would be unworkable and unwise.

**Proposal:**

**USA/ /1 MOD**

1 300-1 525 MHz		
Allocation to services		
Region 1	Region 2	Region 3
.....		
1 350-1 400 FIXED ADD 5.AAA MOBILE RADIOLOCATION 5.149 5.338 5.339 5.339A	1 350-1 400 RADIOLOCATION  5.149 5.334 5.339 5.339A	
1 400-1 427	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341	
1 427-1 429	SPACE OPERATION (Earth-to-space) ADD 5.BBB FIXED ADD 5.AAA MOBILE except aeronautical mobile 5.341	
1 429-1 452 FIXED ADD 5.AAA MOBILE except aeronautical mobile 5.339A 5.341 5.342	1 429-1 452 FIXED ADD 5.AAA MOBILE 5.343  5.339A 5.341	
.....		

**USA/ /2      ADD**

**5.AAA**      In order to ensure the protection of the Earth exploration-satellite (passive) service in the band 1 400–1 427 MHz, the unwanted emissions power in the 1 400–1 427 MHz band delivered to the antenna of any station in the fixed service operating in the band 1 350–1 400 MHz or in the band 1 427–1 452 MHz shall not exceed –45 dBW/27 MHz. This provision shall apply only to fixed service stations brought into use after 9 November 2007. The Bureau shall make neither examination nor finding with respect to this provision under either Article 9 or 11.

**Reasons:** Results of studies documented in Recommendation ITU–R SM.1633 show that large numbers of higher power fixed service transmitters can cause significant levels of unwanted emissions in the 1 400–1 427 MHz passive band. The single-entry unwanted emission limit proposed for future systems will slightly exceed the desired protection level of the EESS (passive) sensors in some cases, but will still allow the collection of valuable scientific data.

**USA/ /3      NOC**

No change to Radio Regulations regarding the radiolocation service allocation in the band 1 350–1 400 MHz.

**Reasons:** Although studies documented in Recommendation ITU–R SM.1633 show that the radiolocation unwanted emissions in the EESS (passive) band at 1 400–1 427 MHz would exceed the permissible interference threshold in Recommendation ITU–R SA.1029–2, any interference would occur for only short time periods and would be readily discernible by users of the remote sensing data, allowing corrupted data to be discarded. The remaining uncorrupted data is expected to satisfy the scientific objectives of the EESS missions. Studies also show that radars would experience unacceptable degradation in operational coverage and range, target resolution, and accuracy if required to meet unwanted emission limits in the 1 400–1 427 MHz band. As with other pairs of active and passive bands, use of portions of the allocated bands must not be restricted. Radars would suffer an increased likelihood of interference from other radars and a reduction in coverage range, while a reduced bandwidth would be inadequate for remote sensing requirements.

**USA/ /4      ADD**

**5.BBB**      In order to ensure the protection of the Earth exploration-satellite (passive) service in the band 1 400–1 427 MHz, the unwanted emissions e.i.r.p. in the 1 400–1 427 MHz band of any earth station in the space operation service (Earth-to-space) operating in the band 1 427–1 429 MHz shall not exceed 8 dBW/27 MHz. This provision shall apply only to space operation service earth stations brought into use after 9 November 2007. The Bureau shall make neither examination nor finding with respect to this provision under either Article 9 or 11.

**Reasons:** Results of studies documented in Recommendation ITU–R SM.1633 show that earth station transmitters in the 1 427–1 429 MHz band can cause significant levels of unwanted emissions in the 1 400–1 427 MHz passive band. The single-entry unwanted emission limit proposed for future systems will slightly exceed the desired protection level of the EESS (passive) sensors in some cases, but will still allow the collection of valuable scientific data.

22-24.75 GHz		
Allocation to services		
Region 1	Region 2	Region 3
....		
22.55-23.55	FIXED INTER-SATELLITE MOBILE 5.149	
23.55-23.6	FIXED MOBILE	
23.6-24	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	
....		

USA/ /5      NOC

No change to Radio Regulations regarding the inter-satellite service allocation in the band 22.55–23.55 GHz.

**Reasons:** Results of studies documented in Recommendation ITU–R SM.1633 show that unwanted emissions from the ISS in the 22.55–23.55 GHz band are well below the recommended protection criteria for the EESS (passive) in the 23.6–24.0 GHz band. Therefore, no changes are needed to the Radio Regulations to protect the EESS (passive) in the 23.6–24.0 GHz band from unwanted emissions from the ISS in the 22.55–23.55 GHz band.

**USA/ 16      MOD**

29.9-34.2 GHz

Allocation to services		
Region 1	Region 2	Region 3
.....		
30-31	FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Standard frequency and time signal-satellite (space-to-Earth) 5.542	
31-31.3	FIXED 5.543A ADD 5.CCC MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research 5.544 5.545 5.149	
31.3-31.5	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	
.....		

**USA/ 17      NOC**

No change to Radio Regulations regarding the fixed-satellite service (Earth-to-space) allocation in the band 30-31 GHz.

**Reasons:** Results of studies documented in Recommendation ITU-R SM.1633 show that unwanted emissions from the FSS in the 30-31 GHz band do not exceed the recommended protection criteria for the EESS (passive) in the 31.3-31.5 GHz band. The FSS allocation is separated from the EESS (passive) allocation by 300 MHz, which greatly reduces the possibility of FSS unwanted emissions exceeding the protection criteria in the EESS (passive) band. Unwanted emission limits in the EESS (passive) band are unnecessary, and could constrain the future development of FSS uplink transmitters in the 30-31 GHz band.

**USA/ /8      ADD**

**5.CCC**      In order to ensure the protection of the Earth exploration-satellite (passive) service in the band 31.3–31.5 GHz, the unwanted emissions power in the 31.3–31.5 GHz band delivered to the antenna of any station in the fixed service operating in the band 31.0–31.3 GHz shall not exceed –38 dBW/100 MHz (see also No. **5.543A**). This provision shall apply only to fixed service stations brought into use after 9 November 2007. The Bureau shall make neither examination nor finding with respect to this provision under either Article **9** or **11**.

**Reasons:** Studies documented in Recommendation ITU–R SM.1633 indicate that EESS (passive) systems in the 31.3–31.5 GHz band are protected if unwanted emissions in that band from fixed service transmitters in the 31.0–31.3 GHz band do not exceed –38 dBW in any 100 MHz reference bandwidth. Measures to ensure that future FS systems in the 31.0–31.3 GHz band do not exceed this level will not constitute an undue burden on the fixed service.

**USA/ /9      MOD**

40-47.5 GHz		
Allocation to services		
Region 1	Region 2	Region 3
....		
47.2-47.5	FIXED FIXED-SATELLITE (Earth-to-space) 5.552 ADD 5.DDD MOBILE 5.552A	

**47.5-51.4 GHz**

Allocation to services		
Region 1	Region 2	Region 3
<b>47.5-47.9</b> FIXED FIXED-SATELLITE (Earth-to-space) 5.552 ADD 5.DDD (space-to-Earth) 5.516B 5.554A MOBILE	<b>47.5-47.9</b> FIXED FIXED-SATELLITE (Earth-to-space) 5.552 ADD 5.DDD MOBILE	
<b>47.9-48.2</b>	FIXED FIXED-SATELLITE (Earth-to-space) 5.552 ADD 5.DDD MOBILE 5.552A	
<b>48.2-48.54</b> FIXED FIXED-SATELLITE (Earth-to-space) 5.552 ADD 5.DDD (space-to-Earth) 5.516B 5.554A 5.555B MOBILE	<b>48.2-50.2</b> FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.552 ADD 5.DDD MOBILE	
<b>48.54-49.44</b> FIXED FIXED-SATELLITE (Earth-to-space) 5.552 ADD 5.DDD MOBILE 5.149 5.340 5.555		
<b>49.44-50.2</b> FIXED FIXED-SATELLITE (Earth-to-space) 5.552 ADD 5.DDD (space-to-Earth) 5.516B 5.554A 5.555B MOBILE	5.149 5.340 5.555	
50.2-50.4	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340	
50.4-51.4	FIXED FIXED-SATELLITE (Earth-to-space) ADD 5.DDD MOBILE Mobile-satellite (Earth-to-space)	

**USA/ /10      ADD**

**5.DDD**      In order to ensure the protection of the Earth exploration-satellite (passive) service in the band 50.2-50.4 GHz, the unwanted emissions e.i.r.p. in the 50.2-50.4 GHz band of any earth station in the

fixed-satellite service operating either in the band 47.2-50.2 GHz or in the band 50.4-51.4 GHz shall not exceed 43 dBW/200 MHz under clear sky conditions, or 49 dBW/200 MHz under fading conditions. This provision shall apply only to fixed-satellite service earth stations brought into use after 9 November 2007. The Bureau shall make neither examination nor finding with respect to this provision under either Article 9 or 11.

**Reasons:** Results of studies documented in Recommendation ITU-R SM.1633 show that fixed-satellite service uplink transmitters operating in bands adjacent to then 50.2-50.4 GHz passive band can cause significant levels of unwanted emissions in the 50.2-50.4 GHz passive band.

**USA/ 11      MOD**

51.4-55.78 GHz		
Allocation to services		
Region 1	Region 2	Region 3
51.4-52.6	FIXED ADD 5.EEE MOBILE 5.547 5.556	
52.6-54.25	EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556	
....		

**USA/ 12      ADD**

**5.EEE** In order to ensure the protection of the Earth exploration-satellite (passive) service in the band 52.6–54.25 GHz, the unwanted emissions power in the 52.6–54.25 GHz band delivered to the antenna of any station in the fixed service operating in the band 51.4–52.6 GHz shall not exceed –33 dBW/100 MHz. This provision shall apply only to fixed service stations brought into use after 9 November 2007. The Bureau shall make neither examination nor finding with respect to this provision under either Article 9 or 11.

**Reasons:** Studies documented in Recommendation ITU-R SM.1633 indicate that EESS (passive) systems in the 52.6–54.25 GHz band are protected if unwanted emissions in that band from fixed service transmitters in the 51.4–52.6 GHz band do not exceed –33 dBW in any 100 MHz reference bandwidth. Measures to ensure that future FS systems in the 51.4–52.6 GHz band do not exceed this level will not constitute an undue burden on the fixed service.

RESOLUTION 738 (WRC-03)

**Compatibility analyses between the Earth exploration-satellite service (passive) and active services**

**Reasons:** Consequential to completion of this agenda item. All of the actions required under this Resolution will have been completed at WRC-07 and it may be suppressed. The technical studies will either have confirmed that the unwanted emissions do not interfere with the EESS (passive) or appropriate regulatory measures, if necessary, will have been determined and decided by WRC-07.

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